

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: HIGHLAND LAKE	Lake Area (ha): 85.39
Town: ANDOVER	Maximum depth (m): 13.4
County: Merrimack	Mean depth (m): 5.0
River Basin: Merrimack	Volume (m ³): 4278500
Latitude: 43°27'24" N	Relative depth: 1.3
Longitude: 71°45'29" W	Shore configuration: 1.43
Elevation (ft): 645	Areal water load (m/yr): 7.49
Shore length (m): 4700	Flushing rate (yr ⁻¹): 1.50
Watershed area (ha): 1320.9	P retention coeff.: 0.59
% watershed ponded: 0.0	Lake type: natural w/dam

BIOLOGICAL:

13 February 1995

22 July 1994

DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 90%	ASTERIONELLA 80%
	#2		
	#3		
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			4.20
DOM. ZOOPLANKTON (% TOTAL)	#1	KERATELLA 25%	CALANOID COPEPOD 32%
	#2	NAUPLIUS LARVA 25%	NAUPLIUS LARVA 27%
	#3	ACTINOPHRYS 22%	
ROTIFERS/LITER		44	13
MICROCRUSTACEA/LITER		23	28
ZOOPLANKTON ABUNDANCE (#/L)		89	41
VASCULAR PLANT ABUNDANCE			Scattered
SECCHI DISK TRANSPARENCY (m)			5.8
BOTTOM DISSOLVED OXYGEN (mg/L)		1.7	0.4
BACTERIA (E. coli, #/100 ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m):	5.0
Hypolimnion volume (m ³):	810000
Anoxic volume (m ³):	252500

CHEMICAL:Lake: **HIGHLAND LAKE**Town: **ANDOVER**

	13 February 1995		22 July 1994		
DEPTH (m)	4.5	9.5	1.0	5.0	10.0
pH (units)	7.0	6.8	6.7	6.9	6.1
A.N.C. (Alkalinity)	6.6	7.5	4.3	5.0	5.7
NITRATE NITROGEN	< 0.10	0.06	0.06	0.07	0.05
TOTAL KJELDAHL NITROGEN	< 0.10	0.23	0.16	0.29	0.24
TOTAL PHOSPHORUS	0.007	0.007	0.009	0.007	0.015
CONDUCTIVITY (μ mhos/cm)	41.7	49.7	42.1	41.7	43.7
APPARENT COLOR (cpu)	24	28			
MAGNESIUM			0.65		
CALCIUM			2.6		
SODIUM			3.6		
POTASSIUM			0.60		
CHLORIDE	5	6	3	3	3
SULFATE	4	4	5	5	4
TN : TP		41	24	51	19
CALCITE SATURATION INDEX			3.6		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1994

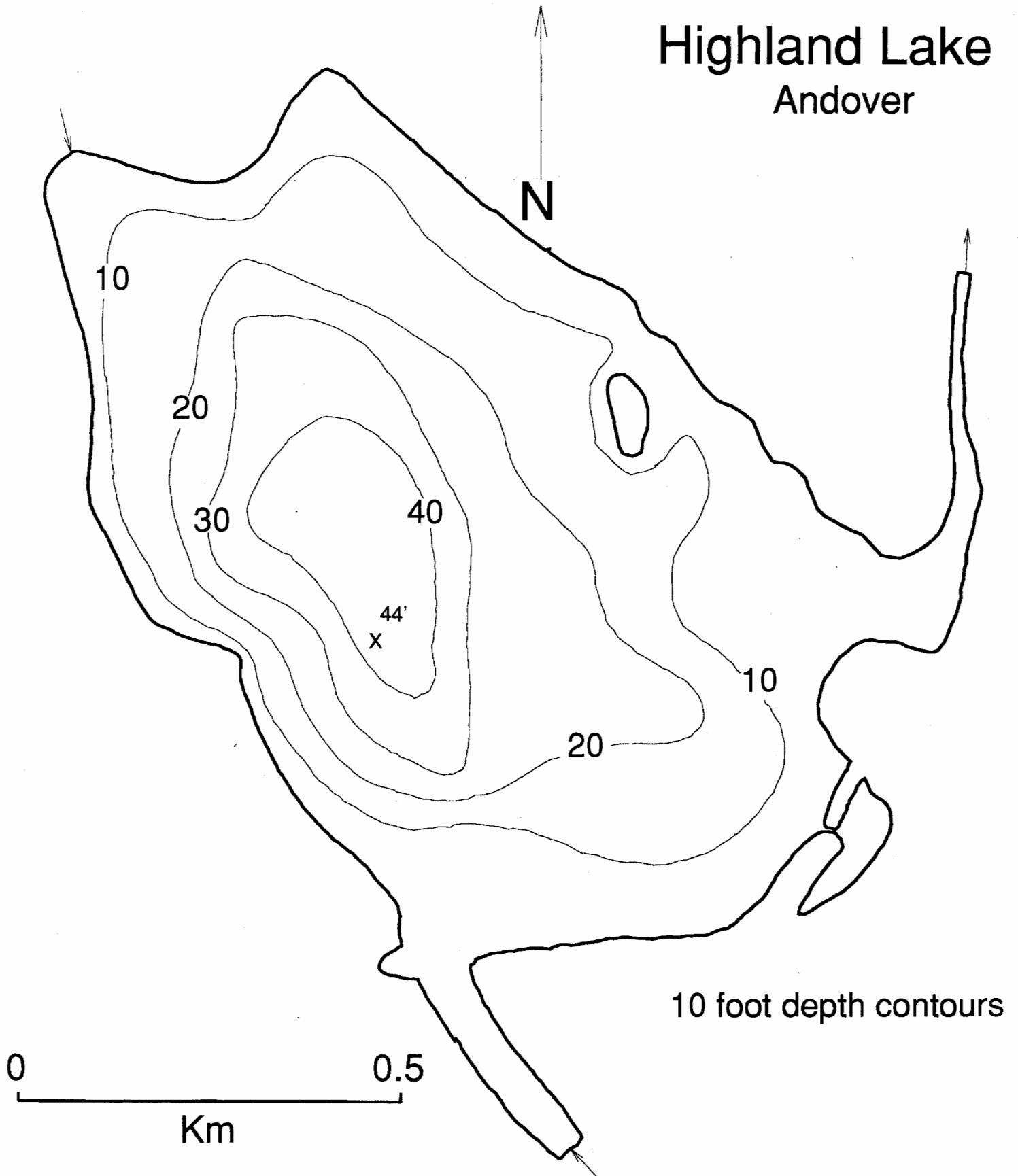
D.O. S.D. PLANT CHL TOTAL CLASS

5	1	1	1	8	Meso.
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COMMENTS:

1. This lake was previously surveyed and classified in 1978. There was no change in trophic classification and little change in water quality between the two years, although the bottom dissolved oxygen depletion was more severe and more extensive in 1994.
2. Highland Lake has participated in DES' Volunteer Lake Assessment Program (VLAP) since 1987. The VLAP data shows improving trends in both chlorophyll and water clarity.

Highland Lake Andover

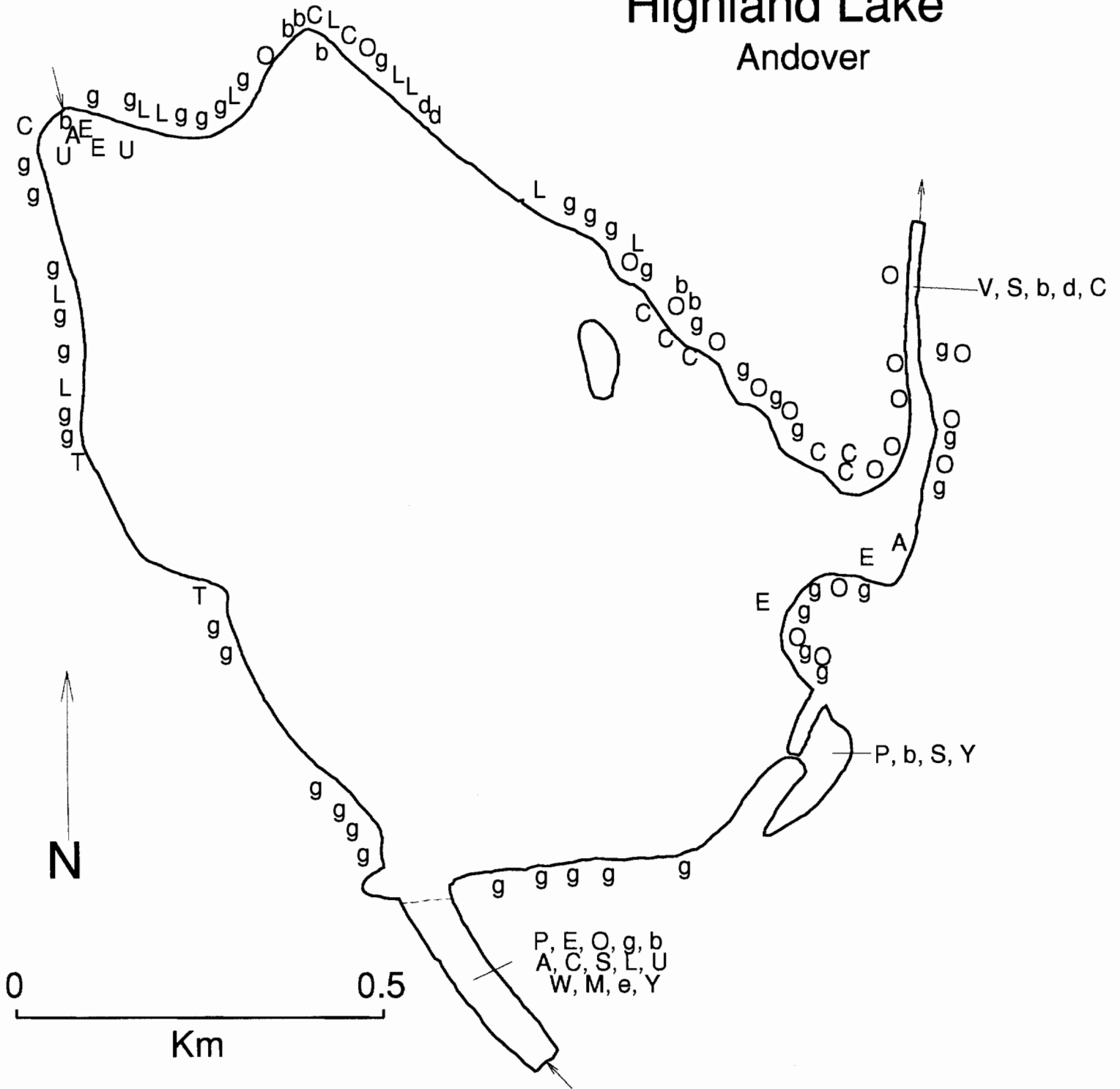


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COMMENTS :

*Dissolved oxygen values are in mg/L

Andover



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